STATEMENT OF WORK

For

Terminal Doppler Weather Radar (TDWR)

Transmitter Control and Monitoring CCA, PR# AC-12-00122

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1. OVERVIEW

The Terminal Doppler Weather Radar (TDWR), sponsored by the Federal Aviation Administration (FAA), is a wind-shear detection system used to increase the safety of the National Airspace System (NAS). Currently, 45 TDWRs are commissioned at the largest airports vulnerable to wind shear and two (2) more are maintained at the FAA Facility in Oklahoma City as support TDWR systems. Gust fronts, precipitation, and micro-bursts are also detected by this radar for aircraft approaches.

Three (3) circuit card assemblies (CCAs) comprising the TDWR's transmitter control hardware are increasingly becoming difficult to support due to obsolescence of key, onboard components. The control CCAs were developed in the late 1980's, early 90's; now at least 20 years old, these CCAs are approaching the end of their economical usefulness with obsolescence factors inflating repair costs.
The FAA conducted a sustainment initiative to develop a contemporary replacement to the existing CCAs. Using modern electronics capabilities and components, the resulting FAA designed Circuit Card Assembly, Transmitter Sustainment and Monitoring CCA, will replace all three existing transmitter control CCAs. Now that the new Transmitter Control and Monitoring CCA has been designed, it must be produced.

2. SCOPE

The Contractor shall produce, via "in-house" or "turnkey" methods or a mixture of both, the Transmitter Control and Monitoring CCA in accordance with the provided circuit board design files (Gerber files) and parts list as well as all other requirements outlined in this statement of work.

This statement of work defines the criteria used to produce both the required first article and production circuit card assemblies.

3. QUALITY CONTROL

3.1. The contractor shall specify an individual who shall serve as the single point of contact for all Quality Control issues.

3.2. The product will be inspected in accordance with its conformance to Technical Specifications (CCA Design files) and Packaging Specifications as stated in the contract. The equipment will be accepted/rejected at destination by the FAA. Certificates of Conformance shall be supplied where applicable. The Contractor may find information at http://www.asq.org.

3.3. The Government and the Contractor agree that equipment contained in the TDWR systems are standard manufactured items and for that reason it may not be necessary to require Government inspection and examination of all work in progress at any time or place during normal working hours. However, in the event an abnormal failure rate, production flaw, etc. (to be determined by a Systems Engineer) is experienced, both parties agree that an in-plant quality control review shall be provided. Accordingly, the Government reserves the right to assign an in-plant Quality and Reliability Officer (QRO) to this contract if it is determined by the Contracting Officer to be in the best interest of the government.

4. CONTRACTOR TASKING/REQUIREMENTS

4.1. The Contractor shall manufacture or cause to be manufactured the required quantity of First Article CCAs according to the supplied design specifications and parts list.

4.2. After Government approval of the First Article Circuit Card Assemblies, the Contractor shall manufacture or cause to be manufactured the required quantity of production CCAs; these activities shall be accomplished in accordance with the design files (i.e. Gerber files and components list) provided by the FAA.

5. WARRANTY

The Contractor shall provide, at minimum, a standard manufacturer's warranty unless greater coverage is available at no additional cost.

6. GOVERNMENT TESTING AND ACCEPTANCE

First Article units will be tested for operation in a working TDWR system; the following paragraphs of this section define the scope of testing and acceptance of circuit card assemblies.

6.1. First Article Transmitter Control and Monitoring CCA testing will be conducted in the following general manner

- Install CCA in a known fully operational Terminal Doppler Weather Radar (TDWR) system (Test bed at Oklahoma City Mike Monroney Aeronautical Center Facility)
- Verify functionality by monitoring the performance of the test bed TDWR comparing it to known normal operating performance
- Verify that no "Alarms" or "Alerts" are generated by the system; the presence of an alarm/alert that can be traced back to the new CCA would indicate unsatisfactory performance.
- The cause of any indicated "alarm" or "alert" will be determined and so the CCA design can be changed or modified, if necessary, before further testing or final Government acceptance of first article units

Note: The Transmitter Control CCA's design has been rigorously tested and shown to meet all required operational specifications of the TDWR. The CCAs produced by the Contractor, being manufactured to the same design, should likewise perform within spec.

6.2. Problems, issues, or faults identified to be caused by the CCA construction and not the design will be corrected by the vendor. The vendor will identify the cause of the fault or faults and implement changes to the manufacturing process and quality control process as necessary to ensure that further units meet the required performance.

6.3. Approval of the Transmitter Control CCA First Article units will occur following the successful completion of First Article testing (i.e. once verified to operate in the TDWR system with no faults or out of tolerance performance).

6.4. Upon approval of the first article units, acquisition of the production quantities of circuit card assemblies will commence. Delivery of the production CCAs is to follow the schedule of milestones listed in Table 9-1.

6.5. Random inspection/testing will be implemented at the destination on CCAs produced for the production phase of the contract. When this occurs, the CCA will be visually examined to verify an acceptable level of craftsmanship has been implemented in its construction; inspected CCAs may also be tested in an operating TDWR system to verify operation with the TDWR and identify potential manufacturing inconsistencies should they be present. All CCA's produced by the Vendor will be accepted at destination by the FAA.

6.6. Items not meeting the requirements of this SOW, the CCA design, and/or all applicable standards will be classified as deficient and non-conforming. Deficiencies will be corrected by the Contractor at no additional cost to the Government. The CO will request a Return Material Authorization (RMA) number from the Contractor for each item that does not meet standards and requirements at testing prior to returning the item to the Contractor. After the required corrections, the part will be returned to the FAA with a 4650-12 Form obtained from the COTR. The returned item shall be plainly marked "Reworked" and returned to the FAA, packaged and shipped in accordance with the packaging and shipping instructions

7. DELIVERABLES

The Contractor shall deliver the required quantities of First Article and Production Transmitter Control and Monitoring CCA units in accordance with the CCA design files and parts list, as well as any additional requirements defined in this statement of work. The contractor shall also deliver all Contract Data Requirements (CDRLs) identified in Exhibit 3 and throughout this document. After government approval of the first article units, the Contractor shall manufacture the required quantities of Production Transmitter Control and Monitoring CCAs for the FAA. Delivery of manufacturer first article and production phase CCAs shall occur according to the schedule defined in Table 9-1

8. SCHEDULE

Table 9-1: Milestones		
Milestone	**Date**	**Deliverable**
1. Contract Award.		None. Date establishes a starting point for the following deliverables.
2. First Article Delivery	Within 60 days of contract award	First Article Units Delivered to FAA Facility
3. First Article Testing	Within 30 days after receipt of First Article CCAs	
4. Production Decision	Within 60 days following the installation of First Article CCA(s)	
5. First Production Delivery	Within 60 days following production decision	First production CCAs delivered
6. Last Production Delivery	Within 120 days following production decision	Final Production CCAs delivered

9. CONTRACTOR POINTS OF CONTACT

The Contractor will identify specific Contractor personnel, by name, email, and telephone number, who can be contacted regarding, but not limited to, the following topics: [CDRL A001]

- Status and progress for manufacturing of required CCA quantities
- Quality Control Inquiries (also found in Section 4.1 of this Statement of work)
- CCA returns (Warranty related or otherwise)
- General Information

10. SHIPPING REQUIREMENTS

10.1. Shipping Cost

The Contractor shall include in the manufacturing price, the cost of return shipping to the FAA of all produced CCAs (First Article and Production Units); CCAs being returned under warranty related repair activities are the exception.

10.2. Shipping Information

Deliver Circuit Card Assemblies for First Article Testing to the following address:
697349 FAA Aeronautical Center
M-F: Operating Stock
6500 S. MacAurther Blvd.
Oklahoma City, Ok 73169-6901

Unless otherwise directed by the Contracting Officer's Technical Representative (COTR), address all production Transmitter Control and Monitoring CCAs for shipment to:

697349 FAA Aeronautical Center
M-F: Operating Stock
6500 S. MacAurther Blvd.
Oklahoma City, Ok 73169-6901

11. PACKAGING REQUIREMENTS

The Contractor is to package the manufactured circuit card assemblies in accordance with best commercial practices as defined by the Preservation, Packaging, Packing, and Marking Clause found in the SIR/RFO documentation (Clause CLA.2102). The National Stock Number for the Transmitter Control and Monitoring CCA is 0000-00-012-1913 .

Exhibit 1
CCA MANUFACTURING REQUIREMENTS AND DESIGN PACKAGE DESCRIPTION

The following text describes mandatory Contractor capabilities and the Design Package for the Transmitter Control and Monitoring (TCM) Circuit Card Assembly (CCA).

Mandatory Contractor Manufacturing Requirements:

- The Contractor must be capable of implementing "5 mil Space/Trace" for circuit card assembly manufacturing.

Design File References:

The Transmitter Control and Monitoring CCA's design is defined by the following listed documents; these documents are provided/attached to this SIR/RFO. These documents compose the FAA Transmitter Control and Monitoring CCA Design Package specification.

Gerber Files (Circuit Board Design)

- assembly.pho
- drill_drawing.pho
- lyr_1_top.pho
- lyr_2_vcco.pho
- lyr_3_gnd1.pho
- lyr_4_vccint.pho
- lyr_5_vccaux.pho
- lyr_6_gn2.pho
- lyr_7_inner.pho
- lyr_8_bottom.pho
- nc_drill.drl
- nc_drill.lst
- silk_screen_bottom.pho
- silk_screen_top.pho
- solder_mask_bottom.pho
- solder_mask_top.pho

Supporting Documents

BOM.htm (Bill of Materials listing component types and quantities required to populate the CCA